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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/784,081	02/21/2004	Gordon Wilson	ONTA-03-006	7021

7590 01/23/2007
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EXAMINER

LEUNG, WAI LUN

ART UNIT	PAPER NUMBER
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2613

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/784,081

Applicant(s)

WILSON, GORDON

Examiner

Danny Wai Lun Leung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged.

Specification

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because it contains only 22 words.

Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Moon et al.** (US 20030007148A1), in view of **Johs et al.** (US005666201A).

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Regarding to claims 1, **Moon** discloses In an optical device (600, fig 41) having at least one movable element (218, fig 41), a method of operating the optical device comprising the steps of: receiving an optical signal from an optical input aperture (*input 12 and 612, fig 41*); diffracting the optical signal into one or more chromatically dispersed components (*diffracted beams 236, 636, fig 41; paragraph 150-151*) and a non-chromatically dispersed component (*start and stop beams 270, 282, fig 21-23 are simply reflected by the start and stop mirrors 210, 212, and thus are not chromatically dispersed; paragraphs 119-121*); and directing one of the chromatically dispersed components to an optical output (*paragraph 121*); CHARACTERIZED IN THAT: positional feedback information about the movable element is determined from the non-chromatically dispersed optical signal (*paragraph 121*).

Moon does not disclose expressly wherein the one or more chromatically dispersed components are non-zeroth-order components, and wherein the non-chromatically dispersed component is a zeroth-order component. **Johs**, from the same field of endeavor, teaches a dispersive optical element (*DO, fig 1*), diffracting optical signal into one or more chromatically dispersed non-zeroth-order components (*+ORD1, +ORD2, etc, fig 1a*), and a non-chromatically dispersed zeroth-order component (*ORD0, fig 1a; col 8, ln 31-60 describes a dispersive optics that generates a plurality of "orders" of beams; col 11, ln 4-32 further explains that the "order" can goes from zero to infinite*). Therefore, it would have been obvious for a person of ordinary skill in the art at the time of invention to treat **Moon's** chromatically dispersed components as non-zeroth-order components, and the non-chromatically dispersed component as a zeroth-order component as taught by **Johs**. The motivation for doing so would have been to able to numerically analyze the components so as to perform compensation.

Claim 12 is rejected for the same reasons as stated above regarding claim 1, because in addition to the limitations in claim 1, **Moon** further teaches an optical device (600, *fig 41*) comprising: an input for receiving an optical signal (12, *fig 41*); a diffractor (214, *fig 41*), for diffracting the optical signal into a one or more chromatically dispersed components (236, 636, *fig 41*; *paragraph 150-151*) and a non-chromatically-dispersed component (270, 282, *fig 21-23*; *paragraphs 119-121*); a movable reflector (202, *fig 41*), for selectively directing one of the chromatically dispersed components to an output (454, 604, *fig 41*); and a position detector (216, *fig 41*); responsive to the non-chromatically dispersed component; for providing positional feedback information about the movable reflector (*paragraph 121*). It would have been obvious to combine **Moon and Johs** for the same reason as stated above regarding claim 1, such that **Moon's** chromatically dispersed components are treated as non-zeroth-order components, and the non-chromatically dispersed component is treated as a zeroth-order component.

Claim 23 is rejected for the same reasons as stated above regarding claim 1, because in addition to the limitations in claim 1, **Moon** further discloses an optical device (700, *fig 43*) comprising: means for inputting an optical signal (702, *fig 43*); means for diffracting the optical signal (214, *fig 43*) into one or more chromatically dispersed components (236, 636, *fig 43*; *paragraph 150-151*) and a non-chromatically dispersed component (270, 282, *fig 21-23*; *paragraphs 119-121*); means for directing (204, 242, *fig 43*), one of the chromatically dispersed components to an output (206, 208, *fig 43*); and means for determining (216, *fig 43*), a position of the directing means from information derived from the non-chromatically dispersed component (*paragraph 121*). It would have been obvious to combine **Moon and Johs** for the same reason as stated above regarding claim 1, such that **Moon's** chromatically dispersed

components are treated as non-zeroth-order components, and the non-chromatically dispersed component is treated as a zeroth-order component.

As to claims 2 and 3, **Moon** further discloses the method according to claim 1 further comprising the step of: directing the zeroth-order component (*start and stop beams 270, 282*) to a position detector, and directing the optical signal to the movable element (*paragraph 121*).

As to claims 4 and 5, **Moon** further discloses wherein the optical-signal directing, the zeroth-order-component directing, and the non-zeroth-order-component (*diffracted beams 236, 636*) directing is performed by a common optical element (*paragraph 158*), wherein the common optical element is a lens (*224, fig 41*).

As to claims 7 and 13, **Moon** further discloses the method according to claim 1 further comprising the step of: positioning the movable element based upon the positional feedback information (*paragraph 121*).

As to claims 6 and 14, **Moon** further discloses wherein the diffracting step is performed by the action of the movable element and that movable element is a diffraction grating (*fig 13, the movable element.39 is a diffraction grating 24*).

As to claim 8, **Moon** further discloses wherein the movable element is a mirror (*202, fig 14*).

As to claim 9, **Moon** further discloses wherein the optical input aperture comprises a plurality of input apertures (*12, 612, fig 41*).

As to claims 10 and 22, **Moon** further discloses wherein the optical output comprises a tapered slit (*slit 126, fig 12; paragraph 108, 95*).

As to claims 11 and 27, **Moon** further discloses The method according to claims 1 and 23 further comprising the step of: chopping the non-zeroth order output directed components such that desirable signal/noise characteristics are realized (*paragraph 60, selectively filters an optical channels of light such that optical parameters such as signal-noise-ratio can be sensed*).

As to claim 15, **Moon** further discloses wherein the diffractor (254, *fig 15*) and the movable reflector (210, 212, *fig 15*) are the same optical element and that same optical element comprises a grating (214, *fig 15*).

As to claims 16 and 17, **Moon** further discloses the optical device according to claim 8 further comprising an optical element (224, *fig 41*) for directing the input optical signal (602, 220, *fig 41*) to the diffractor (214, *fig 41*) and a non-zeroth-order component to the output (454, 604, *fig 41*).

As to claims 18 and 24, **Moon** further discloses the optical device according to claim 12 further comprising an optical element (224, *fig 41*) for directing the zeroth-order component to the position detector (216, *fig 41; paragraph 121*).

As to claims 19 and 26, **Moon** further discloses the optical device according to claim 13 wherein the input optical signal director element, the non-zeroth-order directing element and the zeroth-order directing element are a common optical element/common lens (*lens 224, fig 41*).

As to claim 20, **Moon** further discloses wherein the common optical element comprises a lens (*lens 224, fig 41*).

As to claim 21, **Moon** further discloses wherein the input comprises one or more apertures (*12 and 612, fig 41*).

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As to claim 25, **Moon** further discloses the optical device according to claim 17 wherein the zeroth-order component directing means and the non-zeroth order directing means are lenses (*lenses 18 and 122, fig 12*).


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Danny Wai Lun Leung whose telephone number is (571) 272-5504. The examiner can normally be reached on 9:30am-9:00pm Mon-Thur.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DWL
January 11, 2007


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